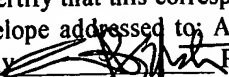


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THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Reply, Application of:

Fermin Marquez ARZATE et al.

Serial No. 10/780,021

Filed: February 16, 2004

Title: **IMPROVED OVERHEAD AND
UNDERGROUND TELEPHONE
LEAD IN CABLE FOR VOICE,
DATA AND VIDEO TRANSMISSION
SERVICES**

Docket No. MX/JFC04-01A

Group Art Unit: 2831

Examiner: William Mayo II

APPELLANTS' BRIEF
UNDER 37 C.F.R. §1.192

Assistant Commissioner for Patents
Washington D.C. 20231

Sir:

The following is Appellants' Brief submitted in triplicate pursuant to 37 C.F.R. §1.192(a).
A one month extension of time is filed with this Brief.

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I. REAL PARTY IN INTEREST

The real party in interest in the appeal is the assignee, Servicios Condomex S.A. de C.V.

II. RELATED APPEALS AND INTERFERENCES

There are no such appeals or interference which will directly affect or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

During prosecution of the above-identified application, 24 claims were considered by the Examiner. In the Response filed January 31, 2005, claims 1-8 have been cancelled; claims 9-32 remain pending. A supplementary amendment was filed on March 8, 2005, claims 9-32 were cancelled and claims 33-56 remain pending. In the Final rejection dated May 6, 2005, claims 33-56 were rejected. In a Response to Final rejection dated July 17, 2005, claims 33-56 remain pending. In the Advisory Action dated August 4, 2005, the Examiner did not indicate which claims have been rejected. For purposes of this Appeal, the claims on appeal are claims 33-56.

A copy of the pending claims on appeal are set forth in the attached Appendix.

IV. STATUS OF AMENDMENTS

An amendment was filed subsequent to the final rejection in the Office Action dated May 6, 2005. None of the amendments were entered. The Examiner did not indicate the rationale for not entering the amendments of 39, 52 and 55-56. Earlier amendments filed on March 8, 2005, all prior to the final rejection have been entered.

V. SUMMARY OF THE INVENTION

In its broadest scope, Appellants' invention relates to an overhead or underground telephone lead-in cable for voice, video and data (VVDL) transmission services, comprising: a rectangular structure comprising a rectangular outer cover having a

geometrical shape comprising a thermoplastic material; at least one or a plurality of transmission circuit comprising: a self-supporting member comprising two conducting elements; said elements arranged at the opposite ends, in parallel, and in turn are diametrically opposed to the transmission circuit; said cable comprising a core having a pair of stranded conductors placed at the center of the rectangular structure of the cable wherein said conductors are insulated by a thermoplastic compound layer; a swelling layer surrounding said core which is deposited electrostatically as a moisture protection element; and an extruded cover reinforced with a thermoplastic material forming the lead-in cable as defined in Claim 33.

As explained at page 1 of Appellant's specification, overhead lead in lines of unitary telephone services have been limited with regard to their bandwidth and resistance to radio interferences because of their design. In addition, various other cable designs have been developed but these prior art systems suffer from efficient high speed transmission, more particularly, above 155 Mbps.

Appellants go on to explain that several techniques were used to provide adequate response in frequency above 100 Mhz and to be self supporting over distances spanning more than 100 meters. Thus, efficient high speed transmission problems, as well as, weather resistance are quite problematic. As stated at page 2, lines 12-25 to page 3, lines 1-13 as follows:

"....Among the known techniques used to solve the above problems, in US patent 4,467,138, a "conductive cable for plural communication" is described, the design of which is related to a flat communication conductor. Said flat communication has two or more communication ports, polyolefin insulated cables united through its length arranged in groups on opposed and parallel sides of a conductive steel wire.

Even though cables presenting stranded pairs of conductors are known, not all of them have the same application, i.e., depending on *their use*, the design *varies* in each case and even *numbers of pitches* of the stranded pair presents *differences*. For example, in US patent 6,064,008 a communication cable having two pair of stranded conductors is described, the main characteristics of which it is not the stranded pairs but the insulating filling material based on a chemical product of fluorinated polymer with a blowing agent. In US patent 6,509,526, anteriority of the instant invention, a telephone lead in cable is described for ordinary voice service and high performance

Data and Video transmission services. Said cable is based on a thermoplastic sleeve, with a data transmission circuit having two metal wires helically united within a thin protective band resisting temperatures up to 240°C. At the center of said thermoplastic sleeve a circuit element for voice transmission based on parallel metal conductors is arranged. Each one of said metal conductors is opposed to the helical union of the first circuit... (emphasis added)”

Moreover, the objective of the invention as set forth at page 5, lines 9-18 of the specification include as follows:

“...The main object of the new Voice, Video and Data (VVDL) telephone lead-in cable is to prevent moisture penetration into the core of the VVDL cable, when it is used in overhead service and exposed to moisture penetration from rain, or when said cable is installed in underground ducts and directly exposed to extremely moist environments. The core formed by two insulated conductors is characterized because it incorporates outside around the conductors a moisture absorbing powder film of swelling material preventing water penetration inside said core...”

In fulfillment of the foregoing objectives, the present invention provides an improved overhead or underground telephone lead-in cable for transmission services (VVDL) based on the design of *self supporting elements* for overhead lead in lines and a *dedicated circuit permitting a high speed digital signal transmission without interfering* at all with the voice service signals or the use of additional electronic circuits to separate the signals. The other crucial aspect of the invention is the cable design which is *highly resistant to diaphony*.¹ The design is characterized with a core of two insulated conductors **impregnated with a surrounding layer of moisture absorbing swelling powder**. There is no disclosure or suggestion in the cited prior art regarding a moisture absorbing swellable material.

Moreover, the distribution of the film of the swelling material is applied *electrostatically* such that it is controlled in a quantity proportional to the required thickness of the film. As disclosed on page 5, lines 19-24 of the Applicants' specification, the film of moisture absorbing layer is applied alternately through an electrostatic system

¹ intermodulation distortion or interferences in the signals, as well as other operations.

when the external cover of the cable is applied. The system permits the distribution of the film in a controlled manner, and the deposit of the swelling material in a quantity that is proportional to the required thickness of the said film.

Furthermore, disclosed on page 6, lines 16-19 of Appellants' specification is as follows:

"...between the conductive elements of circuits 12 and 13 and protective film 16 or sleeve 8 area, the swelling powder layer based on a superabsorbing polymer is formed...."

Page 10, lines 9-12 discloses as follows:

"...the space between the protection tape 16 and the core of strand 15 is impregnated with a layer of swelling material powder (sodium acrylate) homopolymer commercial product...."

The advantage of the cable design is tensile strength, i.e., the increase of the installation span distance which can be solved through the change of cross section of the support elements or the type of material used in their manufacturing. Moreover, the use of swelling power on the paired core permits the direct use of the cable in underground installations because the absorbing material prevents the penetration of the moisture, usually found in underground installation. Additionally, the cable withstands a crushing test of 1000lb/f (14.88 kg/cm).

From the above, it is the a) *use of the moisture swellable material*; b) the *coating and layering* of the area around the *thin sleeve* and the *core of stranded conductors*; c) the *deposit of the swelling material* in a quantity that is proportional to the required thickness of the said film; and d) the *manipulation of application technique through electrostatic means* in a controlled manner to achieve the cable of the present invention which is highly resistant to diaphony, highly crush and moisture resistant and possesses modified tensile strength.

Claim 34 relates to overhead or underground cable wherein the conducting elements are made of material selected from the group consisting of metal, alloys, fiber glass and combination thereof. Claim 35 relates to overhead or underground cable wherein the conducting elements are impregnated with a material selected from a group

consisting of polymers, kevlar tapes and mylar tapes.

Several claims recite the *coating, position and manner of layering of the swelling material* on the parts of the cable and *how the coating was applied* on the cable of the present invention. For example, Claim 38 relates to the overhead or underground telephone lead-in cable for transmission services (VVDL), wherein the swelling layer comprises a swelling powder which is a conventional poly(sodium acrylate) homopolymer compound. Claim 39 relates to the overhead or underground cable wherein the swelling layer is electrostatically applied to form a cover layer on the stranded pair during the extrusion of a flame resistant reinforced thermoplastic cover. Claim 48 relates to the overhead or underground telephone lead-in cable for transmission services (VVDL) wherein the swelling layer further comprises a filler, which serves as a moisture protective element and is deposited electrostatically and arranged between the area around the thin sleeve and the core of the stranded conductors. Claim 53 relates to the overhead or underground telephone lead-in cable for transmission services (VVDL) wherein the space between the thin protecting tape material and the stranded conductor is impregnated through electrostatic means with the swelling layer. Claim 56 is a more specific claim and recites a filler of swelling layer surrounding the core which is deposited electrostatically between the area around the thin sleeve and the core of stranded conductors as a moisture protection element.

VI. ISSUES ON APPEAL

The issues on appeal are:

- (1) Whether or not claims 33-56, directed to overhead or underground cable are indefinite under 35 U.S.C. §112, second paragraph
- (2) Whether or not claims 33-56, directed to overhead or underground cable were properly rejected as being unpatentable under 35 U.S.C. §103(a) over Osornio et al. in view of Asai et al.

VII. CLAIM GROUPING

The claims do not stand or fall together. For purposes of 35 U.S.C. § 112, second paragraph, claim 33 stands apart from each of claims 34-56. Each of the claim stands apart from each other. For purposes of 35 U.S.C. § 103, claim 33 stands apart from each of claims 34, 35-36, 37, 38, 39, 40, 41, 42, 43, 44, 45-46, 47-48, 49, 50, 51, 52, 53, 54, 55 and 56. Each of the claim stands apart from each other.

VIII. ARGUMENT

The Appellants will present arguments to show that the Examiner has not met his burden to maintain a prima facie case of unpatentability of the inventions claimed here. The initial burden of presenting a prima facie case of unpatentability based, inter alia, on the prior art rests on the Examiner. *In re Oetiker*, 24 USPQ 2d 1443 (Fed. Cir. 1992). Assuming the burden is met, the burden then shifts to the Applicant to come forward with evidence or argument. Once the Applicant does so, "patentability is determined on the totality of the record, by a preponderance of evidence with due consideration to persuasiveness of argument." *Id.* (emphasis added, citations omitted).

The discussion which follows will establish that Appellants have provided ample support for patentability of the subject claims. The Examiner has not adequately responded to the Appellants' arguments and evidence to maintain the basis for unpatentability. In a concurring opinion to *In re Oetiker* decision, Justice Plager stated "[t]he burden is on the Commissioner to establish that the Applicant is not entitled under the law to a patent . . . [even] if, as a matter of law, the issue is in equipoise, the Applicant is entitled to the patent." *Id.* (citations omitted, emphasis added).

A. The rejection of claims 33-56 under 35 U.S.C. § 112 should be reversed because the claims satisfy the requirements under 35 U.S.C. § 112, second paragraph.

It is submitted that Claims 33-56 are definite. The claims properly recite the circuit which refers to "the at least one or plurality of transmission circuit" in line 7 of claim 33. There are no other circuits recited in Claim 33.

The Examiner erroneously interpreted the term “transmission circuit” in claim 33. Applicants construe the “at least one or a plurality of transmission circuit” comprises a self supporting member comprising two conducting elements and said elements are arranged at the opposite ends in parallel and in turn are diametrically opposed to the transmission circuit. It is submitted that the antecedent basis by implication is recited in the claim. See *Slimfold Mfg. Co. v. Kinkead Indus. Inc.*, 810 F.2d 1113, 1116 (Fed. Cir. 1987) (noting that an antecedent basis can be present by implication). Because the “transmission circuit” is not lacking in antecedent basis, it is submitted that the Examiner erred in rejecting the claims under 35 U.S.C. §112, second paragraph.

If the claims read in the light of the specification reasonably apprise those of ordinary skill in the art both of the utilization and scope of the invention, and if the language is as precise as the subject matter permits, the courts can demand no more. *Shatterproof Glass Corp. v. Libbey-Owens Ford. Co.*, 225 USPQ 634 (Fed. Cir. 1985).

Moreover, if the scope of the subject matter embraced by the claim is clear and if Applicants have not otherwise indicated that they intend the claim to be of different scope, then the claim particularly points out and distinctly claim the subject matter which the Applicant regard as their invention. *In re Borkowski*, 164 USPQ 642 (CCPA 1970).

Further, MPEP §706.03 (d) provides that “Some latitude in the manner of expression and the aptness of the terms should be permitted even though the claim language is not as precise as the Examiner might desire.”

From the above, it is submitted that the term “transmission circuit” can be determined by one of ordinary skill in the art from the protocol disclosed in the Appellants’ specification. Where one of ordinary skill in the art would know the elements necessary to achieve the desired result, the claim is definite and satisfies the requirement of 35 U.S.C. §112, second paragraph.

Appellants submit that claims 39, 52, 55 and 56 under 35 U.S.C. §112, second paragraph. Claims 39, 52, 55 and 56 have been amended in accordance with the Examiner’s suggestion. The claims have been amended to “merely clarify” the language already in the claims. The amendments do not change the scope of the claim and can not be construed as substantive changes. *Kaufman Co. Inc. v. Lantech Inc.*, 1 USPQ 2d 1202,

1207 (Fed. Cir. 1986). The amendments merely clarified the term language of what was always *implicit* or *inherent* and are not substantive changes. Appellants requested entry of the minor amendments. However, the Examiner denied entry of the amendments without providing a rationale on why the amendments were not entered. In similar regard, the Examiner did not enter the amended drawings. The Examiner denied entry of the amendments without providing any rationale for not entering the amendment.

Appellants request the reversal of the rejection of claims 33-56 under 35 U.S.C. §112, second paragraph as being indefinite.

- B. The rejection of the claims under 35 U.S.C. § 103 should be reversed because there are no references in the prior art that taken individually or together disclose all of the elements of the present invention, motivate or suggest the present invention or provide a reasonable expectation of success.**

Claims 33-56 were rejected under 35 U.S.C. §103(a) as being unpatentable over the Osornio et al. in view of Asai et al.

Appellants have presented arguments and evidence in their response to establish that the Examiner has failed to establish a *prima facie* case of obviousness. Appellants submit that the Examiner has failed to fully address and consider such arguments and evidence as directed by law.

In *In re Vaeck*, 20 USPQ2d 1438 (Fed. Cir. 1991), the Federal Circuit set forth the standard for *prima facie* obviousness in a method-related opinion, citing *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). The Court stated that a proper *prima facie* obviousness rejection requires consideration of two factors:

- 1) whether the prior art would have suggested to one of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process; and
- 2) whether the prior art would also have revealed that in so making or carrying out, those of ordinary skill would have a reasonable expectation of success Both the suggestion and the reasonable expectation of success must

be founded in the prior art, not in the applicant's disclosure.
(emphasis added)

In order to support a rejection under 35 U.S.C. §103, a basis for a suggestion to make the claimed invention must be found in the prior art. In addition, one of ordinary skill in the art would have had to have a reasonable expectation of success of making the claimed invention. Neither of these elements are found in the art cited by the Examiner.

Appellants request the Board to determine upon review of all the evidence whether one of ordinary skill in the art would have been motivated to a) select, pick or choose a specific swelling agent from a multitude of disclosed radiation curable water swellable composition such as multitude of polymers/combination of polymers, fillers, surfactants, photoinitiators, promoters) in the secondary reference and incorporate this specific swelling agent in the cable of the primary reference; b) select a specific swelling agent and determine which position or part of the cable should be coated with the swelling agent; c) determine how much and when the coating should be applied and that they would have been able to do so with a reasonable expectation that the cable would function effectively to i). permit high speed digital signal transmission without interfering at all with the voice service signal; ii) highly resistant to diaphony; iii) provide tensile strength, i.e., increase of installation span distance; and iv) allow direct use of the cable in overhead and underground installations.

1. **The rejection of the claims under 35 U.S.C. § 103 should be withdrawn because the cited art does not suggest or motivate the claimed invention.**
-

The Examiner urged that it would have been obvious to one of ordinary skill in the art of cables at the time invention was made to modify the telephone lead in cable of Osornio to comprise poly(sodium acrylate) coating on the components as taught by Asai et al. because Asai teaches such material is cost efficient, has good wetting and adhesion to many surfaces and may be applied in many cable components. (See September 30,

2004 Office Action at page 14 and May 6, 2005 Final Rejection at page 14). The Examiner cited col. 1& 3, lines 1-13 and 11-29 of Asai et al. However, upon reading of the cited columns in Asai et al, there was no disclosure or suggestion regarding cost efficiency, good wetting or adhesion. These properties provided by the Examiner were pulled selectively from the Appellant's **own** specification. The Examiner has not shown prior art that provides motivation or suggestion to incorporate a specific swelling agent from a multitude of polymers, fillers, blowing agents, tackifiers, fillers, surfactants, photoinitiators, promoters in Asai et al. and incorporate this specific polymer in the cable of Osornio. In addition, the Examiner has not shown the radiation curable polymer would work. Further, the ability of one of ordinary skill in the art to prepare the cable of the present invention does not lead the artisan to achieve the presently claimed cable because there are several factors to be considered, e.g., 1) position or arrangement of the layer of the swelling agent coating on the cable, 2) which part or parts of the cable should be coated with the swelling agent, and 3) how and when should the cable be coated or the means to coat the parts of the cable. Moreover, even if the references did indicate that such a swelling agent might be tried, an obvious-to-try standard would be indicated, which is clearly not a sufficient basis for the rejection. The specified claimed modifications must be specifically motivated or suggested by the prior art.

The Examiner has not shown prior art that provides motivation or suggestion to incorporate the moisture swellable polymer in the cable of Osornio and arrive at the cable design of the presently claimed invention. In addition, the Examiner has not shown the motivation to choose/select polysodium acrylate homopolymer from a multitude of polymers, combination of multitude of polymers, and ingredients such as blowing agents, UV agents, tackifying resins, fillers, surfactants, organic/inorganic acids, adhesion promoters, photoinitiators, etc. disclosed in Asai et al. Further, the ability of one of ordinary skill in the art to prepare a swellable polymer *does not* lead the artisan to achieve the presently claimed cable because there are several factors to be considered, e.g., bandwidth and resistance to radio interferences, cable weight, high speed transmission above 155 Mbps, response to frequencies above 100 Mhz and self supporting over

distances spanning more than 100 meters. It is submitted that the specified claimed modifications *must be specifically* motivated or suggested by the prior art.

As discussed, it is an on-going goal in the art to modify overhead lead in lines of telephone services. This *can not* be done by simple substitution without experimentation. It is submitted that the specified claimed modifications must be specifically motivated or suggested by the prior art.

Recent court opinions hold that the references must plainly or clearly suggest the combination of elements. See, for example, *King Instruments Corp. v. Otari*, 767 F.2d 853, 859 (Fed. Cir. 1989). See also *In re Grabiak*, where the Federal Circuit repeated the CCPA's statement in *In re Bergel and Stock*, 130 USPQ 206, 208 (1961):

The mere fact that it is *possible* to find two isolated disclosures which might be combined in such a way to produce a new product does not necessarily render such production obvious unless the art also contains something to suggest the desirability of the proposed combination [emphasis added].

226 USPQ 870, 872 (Fed. Cir. 1985). Applicants' claims are *not* obvious in view of the above legal standard because the references, when taken together, fail to motivate or suggest the combination. As will be explained below, the cited art fails to provide motivation or suggestion of the present invention for several reasons.

It is impermissible within the framework of 35 U.S.C. §103 to *pick and choose* from a reference only so much of it as will support a conclusion of obviousness to the exclusion of other parts necessary to a full appreciation of what the reference fairly suggests to one skilled in the art. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc.*, 230 USPQ 416 (Fed. Cir. 1986). Courts have long cautioned that consideration must be given "where the references diverge and teach away from the claimed invention". *Akzo N.V. v. International Trade Commission*, 1 USPQ 2d 1241, 1246 (Fed. Cir. 1986).

In the present instance, the Examiner improperly selected disclosures from the cited prior art without finding the motivation or suggestion necessary for one of ordinary skill in the art to combine them.

In summary, none of the cited references supplies the requisite motivation or suggestion to prepare a cable of the presently claimed invention with modified tensile strength, highly resistant to diaphony, highly crush and moisture resistant, and provides high speed digital services link, as well as analog services.

Accordingly, Appellants request the reversal of the the rejection of the claims 33-56 as being unpatentable over Osornio et al. in view of Asai et al. under 35 U.S.C. §103.

As discussed above, it is an on-going goal in the art to provide modified tensile strength, high resistance to diaphony, permit high speed digital transmission without interference and high moisture or crush resistance. This can not be done by simple substitution without experimentation. It is submitted that the specified claimed modifications must be specifically motivated or suggested by the prior art.

Cited References

Osornio et al., U.S. 6,509,526 is directed to a telephone lead-in cable for ordinary voice service, the design of which permits two transmission circuits using one of them as self supporting element for air lead ins and voice signal transmission.

Asai, U.S. 6,103,317 is directed to a **process for preparing** water swellable materials and **radiation cure** processes for the preparation of swellable materials . In particular, it is concerned with the use of such materials and processes for the preparation of water absorbent or water blocking coatings in a rapid continuous process. It further discloses a *multitude of polymers, combination of multitude of polymers*, and ingredients such as *UV agents, tackifying resins, stabilizing agents, fillers, photoinitiators, surfactants, blowing agents, organic or inorganic acids*, etc. as discussed above. Tests were conduct to determine the viscosity of the polymers and balance cure efficiency.

- a. **The cited art fails to provide a motivation or suggestion because the invention contains elements nowhere found or suggested in the prior art.**

The Examiner stated the following rejections:

“Osornio discloses a telephone lead in except the

swelling layer surrounding the core. Osornio teaches that he is concerned with protecting the interior components from exterior elements. Asai teaches a water swellable material which is cost efficient. Based on the teachings of Osornio and Asai, there is a motivation to incorporate the waterproofing filler as taught by Asai into the cable of Osornio.”

Applicants submit that Osornio, who is one of the inventors in the present application, discloses a telephone lead in cable. However, as disclosed in page 2, paragraph 0015, Osornio did not require a swelling material. “Cover 16 *provides the protection* against mechanical abuse to which the elements are submitted during warehousing, transportation and installation. The cover compound is weatherproof and protects the circuit against premature aging caused by solar action, water or any external agents.” Thus, disclosure from Osornio provides **no intention** for additional protection to be weather resistant. The weather resistant objective of Osornio has been **satisfied** by cover 16. Nothing in Osornio discloses or suggests the presently claimed invention regarding the use of a swellable polymer. If anything, Osornio teaches away from the claimed invention.

In contrast, the present invention **required** the swelling agent and cover 16 to provide additional advantages against moisture for underground and overhead cable. The cable provides high speed digital signal transmission *without* interference from voice service signals and use of additional electronic circuits to separate signals.

It is submitted that the cable of Osornio includes 24 AWG conductors as components of the conductive core of the cable. In contrast, the present application permits the development of new cable constructions, e.g., 16 to 26 AWG conductors. The electrical performance of the new VVDL cable of two 24 AWG conductors fulfills the following electrical characteristics. Note Tables 1, 2 and 3 of the present application.

Asai et al. is directed to a **process for preparing** water swellable materials and radiation cure processes for their preparation. In particular, it is concerned with the use of such materials and processes for the preparation of water absorbent or water blocking coatings in a rapid continuous process. It further discloses a *multitude of polymers*, *combination of multitude of polymers*, and ingredients such as *UV agents*, *tackifying*

resins, stabilizing agents, fillers, photoinitiators, surfactants, blowing agents, organic or inorganic acids, etc. as discussed above. Tests were conducted to determine the viscosity of the polymer and balance cure efficiency.

Moreover, Asai et al.'s problems are directed to avoiding presence of water, solvents or fluids, thereby incorporating the radiation cure process. Asai does **not** specifically address the types of or particular problems to which the claimed invention is confronted with, i.e., high speed digital signal transmission without interference from voice service signals and use of additional electronic circuits to separate signals. Thus, even if considered would not suggest the invention to one skilled in the art. If the prior art does not appreciate the existence of the problem solved by the invention, the Applicants' recognition of the problem is in itself, **strong evidence of non-obviousness of the present invention**. *In re Nomiya*, 184 USPQ 607 (CCPA 1975).

b. The Examiner erred in determining that the swelling agent in the presently claimed invention would inherently be anticipated by the disclosure in the prior art

The Examiner urged as follows:

".....the fact that Asai discloses an abundance of polymers, with additives, doesn't distract from the suggestion to utilize the waterproofing filler material... Specifically, the courts have been consistent that if a species (configuration) is clearly named, the species claimed is **anticipated** no matter how many other species are additional (sic) named. *Ex parte A*, 17 USPQ 2d 1716 (BPAI 1990)..."

It is submitted that the Examiner's arguments and reliance upon anticipation (35 U.S.C. §102) were misplaced. Anticipation is a question of fact while obviousness is a reasonable person of ordinary skill standard. The Examiner **can not** apply a 35 U.S.C. §102 anticipation rejection in a 35 U.S.C. §103 obviousness rejection. *In re King*, 231 USPQ 136 (Fed. Cir. 1986).

The rejections here are under §103, not §102, which require the Examiner to consider Applicants' argument that the present invention and Asai's disclosure are directed to a different purpose and that persons of ordinary skill in the art would not look

to Asai for a solution to the problem addressed by Applicants.

As discussed above, Asai was concerned with avoidance of solvents or water in the process for preparing water swellable polymers. A multitude of polymers, a combination of a multitude of polymers, as well as *UV agents, tackifying resins, stabilizing agents, fillers, photoinitiators, surfactants, blowing agents, organic or inorganic acids*, etc. were used. It is submitted that there is no motivation or suggestion that one of ordinary skill in the art would pick and choose a certain polymer, from a plethora of ingredients and starting materials, incorporate this teaching in the presently claimed invention and achieve the desired results.

Moreover, the techniques in applying the water swellable polymer are nowhere taught or disclosed in the prior art. The manner of layering/coating the parts of the cable were not disclosed or suggested by Asai et al. The water swellable polymer of the present invention was applied electrostatically in a controlled alternating manner and applied as a coating to different parts of the cable. For example, the swelling later is electrostatically applied to form a cover layer on the stranded pair during extrusion of the flame resistant thermoplastic cover (Claim 39); the swelling layer is deposited electrostatically and arranged between the area around the thin sleeve and core of stranded conductors(Claim 48); the space between the thin protecting tape material and the stranded conductors is impregnated through electrostatic means with swelling layer (Claim 53).

From the above, it is submitted that the Examiner is arguing inherency.

In *Ex parte Levy*, 17 U.S.P.Q. 2d 1461 (Bd. Pat. App. 1990), the Board held that the Examiner erred in relying upon the "theory of inherency." This was articulated as follows:

"....Inherency may not be established by probabilities. The mere fact that a certain thing may result from a given set of circumstances is insufficient. *In re Oelrich*, 212 USPQ 323 (CCPA 1981)...." See also, *W.L.Gore Associates, Inc. v. Garlock, Inc.*, 220 USPQ 303 (Fed.Cir. 1983). The general rule is that inherency may be relied upon where, only where, the consequence of following the reference disclosure always inherently produces or results in the claimed invention.

Appellants submit that inherency must be a necessary result and not merely a possible result. There is no disclosure or suggestion in Asai et al. regarding the use of a "radiation curable polymer" in a manner as claimed in the presently claimed invention. Rather, Appellants submit that this is based on speculation. Appellants further submit that in order for properties to be inherent in the cited prior art, it must necessarily and inevitably be so.

In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teaching of Asai et al.

The mere allegation that the differences between the claimed subject matter and the prior art are obvious does not create a presumption of unpatentability which forces Applicants to prove conclusively that the Patent Office is wrong. *In re Soli*, 137 USPQ 797 (CCPA 1983).

The ultimate legal conclusion of obviousness must be based on facts or records, not on the Examiner's unsupported allegations that a particular structural modification is "well known" and thus, obvious. Subjective opinions are of little weight against contrary evidence. *In re Wagner*, 152 USPQ 522 (CCPA 1967).

From the above, it is submitted that the swelling agents disclosed in Asai et al. would not be inherently similar to the swelling agents used in a manner claimed in the presently claimed invention.

In *Ex parte Obukowicz*, 27 USPQ2d 1063 (BPAI 1992), the Board held that a prior art reference that only gives general guidance and is not at all specific as to the particular form of the claimed invention and how to achieve it may make certain approach "obvious to try" but does not make the invention obvious.

From the above, the Examiner ignored the fact that one of ordinary skill in the art can not simply pick and choose a specific swelling agent from a multitude of disclosed polymers, albeit radiation cured without the motivation or suggestion in the prior art to incorporate the specific swelling agent in the cable of Osornio et al. Nothing in Asai et al. remotely teaches or suggests the use of the swelling agent and application of the coating to the parts of the cable in a similar manner as claimed in the present invention. If anything, Asai et al. teach away from the present invention.

The above references taken alone or together do not provide any teaching or suggestion on the use of the swelling agent in a manner as claimed by the present invention. Thus, the references, taken alone or together, fail to render the claimed invention obvious.

c. The cited art fails to address the problem with which the presently claimed invention is concerned

The present application presents a case where the cited art fails to articulate the problem being solved by the claimed combination. As explained above, there is no indication in the cited art regarding the use of swelling agent in a manner claimed by the presently claimed invention and achieve the synergistic properties of the cable of the present invention.

The Appellants submit that the Examiner failed to establish a prima facie case of obviousness. The issue is whether it is proper to combine the teachings of Osornio et al. in any manner with Asai et al. It remains the Appellants' position that while Osornio is relevant to cables, the disclosure of Asai et al. was intended to prepare radiation cured polymers and exemplified a multitude of polymers or combination of polymers.

The problems addressed and solved by the Asai et al. secondary reference are not similar to the problems addressed by Osornio et al. Appellants submit that Asai et al. is directed to radiation cure processes of swellable materials which can not be sufficiently attenuated to the cable design of Osornio et al. and is not properly combineable therewith.

The art area of Asai et al. is so different to be non-analogous. The combination of references from non-analogous art has long been held to be improper. See MPEP 2141.01(a). *In re Oetiker*, 24 USPQ 2d 1443 (Fed. Cir. 1992) and *In re Clay*, 23 USPQ 2d 1058 (Fed. Cir. 1992). In *Clay*, the court laid out the criteria as follows:

"Two criteria have evolved for determining whether prior art is analogous: 1) whether the art is from the same field of endeavor regardless of the problem addressed; and 2) if the reference is not within the field of inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *In re*

Demniski, 230 USPQ 313, 315 (Fed. Cir. 1986); *In re Wood*, 202 USPQ 171, 174 (CCPA 1979).

Applying the case law to the present invention, it is submitted that Asai et al. is a non-analogous art for the following reasons:

First, Asai et al.'s field of endeavor is in the method of preparing water blocking composite which comprises impregnating or coating a substrate with a composition comprising a water swellable compound dissolved or dispersed in a monomer and/or oligomer having *radiation-polymerizable functionality* and exposing the resulting impregnated or coated substrate to radiation to effect curing of the composition. Note col. 2, lines 34-41.

Second, Asai et al.'s invention provides a radiation curable composition for forming a water blocking composite with a substrate, the composition comprising a water soluble compound dissolved or dispersed in a monomer or oligomer having *radiation-polymerizable functionality*. Note col. 2, lines 42-46.

Third, the objective of Asai et al. is to provide a route to forming water swellable films or coatings in a rapid on line continuous process based on *radiation curing*. Note col. 2, lines 52-54.

From the above, the Appellants submit that the field of endeavor of their invention is not the same field of invention as Asai et al. Appellants submit that the Asai et al. reference is not reasonably pertinent to the problem solved by the Appellant.

Appellants submit that merely because a swellable material namely, polysodium acrylate was disclosed in Asai et al., one of ordinary skill in the art would have picked, chosen or selected this specific polymer and determined that this specific swelling agent polymer can be incorporated in the cable of Osornio and achieve the unexpected properties (as discussed above) of the presently claimed invention.

This is a classic situation in which no motivation or suggestion is found in the prior art. See, for example, *In re Rinehart*, 189 USPQ 143, 149 (CCPA 1976) where the CCPA clarified that it was improper to maintain an obviousness rejection where "the problem is nowhere alluded to in either . . . [reference] and of course no suggestion of a solution appears in either reference." In the present case, as in *Rinehart*, it is improper,

and indeed illogical, to find a motivation in the prior art to combine elements to solve a problem when the problem being solved was unknown.

Where the prior art does not appreciate the existence of the problem solved by the invention, the Applicant's recognition of the problem is, in itself, strong evidence of the non-obviousness of the invention. *In re Nomiya*, 184 USPQ 607, 612-613 (CCPA 1975); *In re Sponnable*, 160 USPQ 237, 243 (CCPA 1969).

Courts have held that the prior art should disclose or suggest the problem with which the invention is concerned. "That the claimed invention may employ known principles does not by itself establish that the invention would have been obvious." *In re Lindenmann*, 221 USPQ 488 (CCPA 1984).

There is no motivation or suggestion in the prior art to render the claimed invention obvious. In the present case, there is nothing in the prior art which discloses or suggests the problem with which the claimed invention is concerned.

d. The Examiner has chosen to improperly ignore the Appellants' limitation in the presently claimed process.

The claims are directed to an overhead or underground lead in cable for voice, video, and data (VVDL) transmission services. The claims recite that the swelling layer is deposited electrostatically as a moisture protection element. In Claim 39, the claims recite the swelling layer is electrostatically applied to form a cover layer on the pair of stranded conductors during the extrusion of a flame resistant reinforced thermoplastic cover. In Claim 46, the insulation is applied continuously and uniformly such that the concentricity of the wall of insulating material with regard to the conductor is higher than 90% and can be colored for identification purposes. In Claim 48, the swelling layer comprises a filler which serves as a moisture protection element and is deposited electrostatically and arranged between the area around the thin sleeve and core of stranded conductors. In Claim 53, the space between the tape material and the stranded conductor is impregnated through electrostatic means with the swelling layer.

In effect, the Examiner has viewed the Appellant's own Disclosure as "prior art" under 35 USC § 103, which it is not. In order to ignore this limitation as immaterial, the Examiner must also improperly assume that the limitation to *the use of swellable material and the manner it was electrostatically applied to the different parts of the cable* serves no useful purpose.

In *In re Kuehl*, 177 USPQ 250 (CCPA1973), the Court considered the "invention as a whole" to include the new zeolite as well as a process utilizing the new zeolite. The Board of Appeals which required the Appellant in *Kuehl* to show unexpected results in the use of the new zeolite, confused the "invention as a whole" with "the prior art". This requirement was considered by the Court as an improper requirement based upon the use of the hindsight.

Similarly, in the instant case, it is submitted that the Examiner has confused the terms "prior art" and "subject matter (invention) as a whole" as used in 35 U.S.C. § 103, specifically, to consider "electrostatic application of swellable material to different parts of cable" as a non-critical limitation or as part of the "prior art" for the purposes of applying the statute.

Accordingly, the Examiner's rejection incorrectly treats the claim limitation to the electrostatic application of swellable material to different parts of cable as part of the prior art. The correct application of the test of §103 requires that the claims on appeal not be judged against any prior art other than the references cited and applied by the Examiner.

In *In re Pleuddemann*, 15 USPQ 2d 1738 (Fed Cir. 1990), a new class of coupling agents was discovered upon which the Patent Office had granted claims on articles made utilizing said coupling agents. Pleuddemann appealed claims directed to a use of new coupling agents for bonding or priming. The appealed claims recited the use of a novel and non-obvious class of organosilane compound. The Court again reversed the Board of Appeals on the basis that the Board had erroneously considered that in order for the process of use claims to be patentable, the result of the claimed process or method should be unpredictable in order to render the process non-obvious. The Court in *Pleuddemann* found the same flaw in the Board's reasoning as it found in *Kuehl* in that the Board

presumed the Appellant's group of silane compounds to be "prior art". Similarly, the Examiner here has considered the Appellants quantitative method to be "prior art".

It is only by using hindsight that the Examiner can use the Appellants' swellable material in a manner claimed in the present invention, as well as providing high speed digital signal transmission without interference, resistance to diaphony and use of additional electronic circuits to separate signals. The Examiner has used the Appellants' specification teaching as though it were "prior art" to reject the Applicants' claims directed to an improved overhead and underground telephone lead-in cable for voice, data and video transmission services, said cable employing a swelling agent on the thin sleeve and core of stranded conductors.

The Federal Circuit held that the use of *per se* rules is improper in applying the test for obviousness under 35 U.S.C. §103. Rather, §103 requires a highly fact dependent analysis involving taking the "claimed subject matter as a whole" and comparing it to the prior art. To support a rejection under §103, the collective teachings of the prior art must have suggested to one of ordinary skill in the art that, at the time the invention was made, Appellants' claimed invention would have been obvious. It has been held that there simply was no suggestion or motivation in the prior art to obtain the unobvious products to which the claims were limited. Consequently, the rejections were overturned based upon §103.

In interpreting "a claimed invention as a whole", consideration of all the claim limitations is required. Thus, the language in a claim which recites application of a swellable material in an unobvious product must be treated as a material limitation and a motivation regarding this limitation must be present in the prior art for a §103 rejection to be sustained.

The invention is directed to the manipulation of the incorporation of a swellable material, layering or coating the specific parts of the cable, i.e., using a swellable material and applying it electrostatically to produce the cable of the presently claimed invention with unexpected properties. The issue is whether the prior art cited by the Examiner in no way suggests or teaches this modification. Clearly, in view of the improved cable, no such suggestion is made.

e. The Examiner has improperly used Appellants' own teaching to construct the obviousness rejection

There is no motivation or suggestion on the part of one of ordinary skill in the art at the time the invention was made to incorporate the polymer of the secondary reference Asai in the cable of Osornio *et al.* and achieve the cable of the presently claimed invention.

Applicants argue that there is no motivation to combine the teaching of Asai with Osornio and arrive at the present invention for the following reasons.

First, Asai is directed to **processes**, i.e., preparing water swellable materials and **radiation cure processes** for preparing swellable materials, e.g., a substrate impregnated with or having a coating of a mixture of radiation polymerized compound and a water swellable compound. Note col. 2, lines 30-33. The *problems* addressed by Asai is to avoid the presence of solvents and water in the process for preparing the polymers. Asai used a radiation cure process to eliminate these problems.

Second, since Asai's intention is to prepare polymers using radiation cure process, a multitude of polymers are disclosed. Several polymers, include cationically polymerizable systems, e.g., vinyl ether or epoxy functional materials with hydroxyl functional reactants. Other polymers include crosslinked polyacrylates, copolymers or terpolymers of acrylic acid, crosslinked polyethylene oxides, polyvinyl alcohols, crosslinked polyethylene oxides, polyvinyl alcohol, polyvinyl ethers and related co- and ter-polymers, polymaleic anhydrides and copolymers. Moreover, these polymers are combined with photoinitiator, UV agents, surfactants, blowing agents such as metal carbonates and bicarbonates with or without organic/inorganic acid, adhesion promoter or tackifying resin. Note Tables 1-2. Additional polymers are added and a listing of a multitude of these polymers are on col. 7, lines 21-46. Bases, solvents, salts, fibers, fine particles and fillers are also added. The resulting composition are polymerized and cured. From the preceding discussion of Asai, it is submitted that there is no motivation or suggestion to incorporate the embodiments of Asai in the presently claimed invention.

Third, a person of ordinary skill in the art upon reading Asai, will have to select, pick, choose and determine which polymer he should use--blowing agents, fillers, tackifying resins, UV agents, adhesion promoters, surfactants, a multitude of polymers, combination of a multitude of polymers or a combination of all the different reagents in preparing a water swellable polymer. A person of ordinary skill in the art would *not* choose a single polymer from a multitude/plethora of selections and incorporate it in the cable of the present invention and achieve unexpected results.

Fourth, a person of ordinary skill in the art would have to determine a) how to incorporate the swelling agent in the cable of Osornio; b) which position or arrangement should the water swelling agent be incorporated in the cable; c) which part or parts of the cable should be coated with the swelling agent; and d) when should the swelling agent be incorporated.

It is submitted that there is no motivation or suggestion in the prior art to pick and choose a specific polymer from a multitude of polymers, catalysts, tackifying resins and particularly use it for the purpose of preparing the cables of the present invention. *In re Albrecht*, 435 F.2d 908, 911, 168 USPQ 293, 296 (CCPA 1971).

From the above, there is no motivation or suggestion on the part of one of ordinary skill in the art at the time the invention was made to incorporate the polymer of the secondary reference Asai in the cable of Osornio *et al.* and achieve the cable of the presently claimed invention. The *only* possible motivation would have been supplied by the Applicants' own specification, which of course would be proscribed as hindsight application of Applicants' own teachings. Thus, the Examiner improperly used the Appellants' own teachings in an attempt to show obviousness of the present invention.

It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. This Court has previously stated that "[one] cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fritch*, 23 USPQ 2d 1780 (Fed. Cir. 1992).

The *only* teaching linking the polymer of Asai *et al.* is found in the present application. Moreover, even if the references did indicate that such a polymer might be

tried, an *obvious-to-try* standard would be indicated, which is clearly *not* a sufficient basis for the rejection. The specified claimed modifications must be specifically motivated or suggested by the prior art.

Thus, the Examiner improperly used the Appellants' own teachings in an attempt to show obviousness of the present invention.

f. The cited prior art fails to provide a motivation or suggestion because Asai et al. is teaches away from the present invention.

A critical issue is whether Asai et al. constituted relevant prior art. A relevant prior art is defined by the nature of the problem confronting the would be inventor.

“When determining patentability of a claimed invention which combines two known elements, the question is whether there is something in the prior art to suggest the desirability, and thus, the obviousness of making the combination” *Ecolchem Inc. v. Southern Cal. Edison Co.*, 227 F.3d 1361, 1372 (Fed. Cir. 2000), *cert. denied*, 532 U.S. 974 (2001) quoting *In re Beattie*, 974 F.2d 1309, 1311-1312 (Fed. Cir. 1992) quoting *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co*, 730 F.2d 1452, 1462 (Fed. Cir. 1984)).

From the above caselaw, it is submitted that there must be something in the prior art to suggest the “desirability” of using a swelling agent in the cable of Osornio et al. However, Asai et al. is directed to the preparation of radiation cured swelling agents. Moreover, it discloses a multitude of radiation cured polymers, a plethora of a combination of multitude of polymers.

The Federal Circuit’s decisions on obviousness follow *United States v. Adams*, 383 U.S. 39 (1966). In *Adams*, the patented product (a battery) consisted of a combination of old elements that were well known in the prior art 383 U.S. at 51. The Court nonetheless held that the patented battery was nonobvious. The Court held that known disadvantages in old devices which would naturally discourage the search for new inventions may be taken into account in determining obviousness.” 383 U.S. at 52. The Court also noted that “[i]f such a combination of [old battery elements] is novel, the issue

is whether bringing them together as taught by Adams was obvious in light of the prior art.” 383 U.S. at 50. The Federal Circuit has followed the Court’s holding in *Adams*. See e.g., *Kahn v. General Motors Corp.*, 135 F.3d 1472 (Fed. Cir. 1998, *cert. denied*, 525 U.S. 875 (1998)) (“In determining obviousness, the invention must be considered as a whole”); *In re Gurley*, 27 F.3d 551 (Fed. Cir. 1994) (“a reference will teach away if it suggests that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the Applicant”) citing *Adams*, 383 U.S. at 52.

A person of ordinary skill in the art not only should have had some motivation to combine the prior art teaching but some motivation to combine prior art teaching in a particular manner claimed. *In re Kotzab*, 217 F.3d 1365 (Fed. Cir. 2000).

Combining prior art references without evidence of such a suggestion, teaching or motivation simply takes inventor disclosure as a blueprint for piecing together prior art to defeat patentability is the essence of hindsight. *In re Dembiczek*, 175 F.3d 994 (Fed. Cir. 1999).

It is submitted that the Examiner improperly combined the teaching of Osornio with Asai et al. The Examiner asserted that since polyacrylates are disclosed as a swelling agent in Asai et al., one of ordinary skill in the art *a fortiori*, would pick, choose and select this specific swelling agent from a multitude of polymers, a combination of a multitude of polymers, blowing agents, fillers, UV agents, photoinitiator, tackifying resins, surfactants, organic/inorganic acids, adhesion promoters, and incorporate this specific swelling agent in the cable of Osornio and achieve the presently claimed invention. However, there is no disclosure, teaching or suggestion in Asai et al. or Osornio regarding the position, layering or coating of the cable with the swelling agent. There is no disclosure or suggestion in Asai et al. or Osornio regarding the parts of the cable that should be coated with the swelling agent. There is no disclosure or suggestion on Asai et al. or Osornio regarding how the coating of swelling agent should be applied. There is no disclosure or suggestion in Asai et al. or Osornio regarding the unexpected properties achieved by the cable of the presently claimed invention.

From the above, the Examiner has not shown any prior art to show a motivation or suggestion in the prior art to show the incorporation of the teaching of Asai et al. in the


disclosure of Osornio and arrive at the presently claimed invention. In accordance with *In re Oetiker, supra*, the Examiner has not met the requisite burden of proof as required by a prima facie case of obviousness.

IX. CONCLUSION

Appellants have presented the above reasons why the claims are not rendered obvious by the cited references. Each of these arguments alone is sufficient to establish that a *prima facie* case of unpatentability has not been made. In combination, they present a compelling argument that the claims are patentable over the prior art. It is submitted that the Examiner has not presented sufficient arguments or reasoning to contradict the evidence provided by Appellants that the prior art fails to provide a suggestion for providing an improved overhead or telephone lead in cable for voice, data and video transmission services with unexpected properties.

WHEREFORE, in light of the arguments and authorities presented above, reversal of the Examiner's action in rejecting claims 33-56 and allowance thereof are respectfully urged.

Respectfully submitted,


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APPENDIX
APPEALED CLAIMS

33. An overhead or underground telephone lead-in cable for voice, video and data (VVDL) transmission services, comprising:

a rectangular structure comprising a rectangular outer cover having a geometrical shape comprising a thermoplastic material;

at least one or a plurality of transmission circuit comprising: a self-supporting member comprising two conducting elements; said elements arranged at the opposite ends, in parallel, and in turn are diametrically opposed to the transmission circuit;

said cable comprising a core having a pair of stranded conductors placed at the center of the rectangular structure of the cable wherein said conductors are insulated by a thermoplastic compound layer; a swelling layer surrounding said core which is deposited electrostatically as a moisture protection element; and an extruded cover reinforced with a thermoplastic material forming the lead-in cable.

34. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33 wherein the conducting elements are made of a material selected from the group consisting of metal, alloys, fiber glass and combination thereof.

35. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33 wherein the conducting elements are impregnated with a

material selected from a group consisting of polymers, kevlar tapes and mylar tapes.

36. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 35 wherein the polymers are selected from a group consisting of polyolefins, polyethylene, polypropylene and combinations thereof.

37. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33, wherein the circuit formed by a stranded pair of balanced circuit presents a characteristic impedance of 100 ohms.

38. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33, wherein the swelling layer comprises a swelling powder which is a conventional poly(sodium acrylate) homopolymer compound.

39. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33, wherein the swelling layer is electrostatically applied to form a cover layer on the stranded pair during the extrusion of a flame resistant reinforced thermoplastic cover.

40. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33 wherein the self supporting member is made of metal.

41. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 40 wherein the self supporting member acts as additional circuit with regard to the core, enhancing the transmission of voice signals such that they constitute a circuit oriented to the transmission of analog signals.

42. The overhead or underground telephone lead-in cable for the transmission services (VVDL) of claim 33, wherein the circuit of the stranded pair permits the transmission of digital signal data at speeds of 155 Mbps.

43. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33, wherein the pair of conductors are stranded with a smooth surface at a diameter of 0.5 to 0.64 mm.

44. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33, wherein the cable permits to span distances of up to 150 meters, and the distance between each strand of the conductors permits to reduce the diaphony effects caused by the nearness of other element emitting electromagnetic signals, as well as reduce the loss of energy to the other circuit.

45. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33, wherein in each one of the conductors, the core is insulated

with a thermoplastic layer.

46. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 45, wherein the insulation is applied continuously and uniformly such that the concentricity of the wall of insulating material with regard to the conductor is higher than 90% and can be colored for identification purposes.

47. The overhead or underground telephone lead-in cable for transmission services (VVDL) according to claim 33 further comprising a thin thermoplastic sleeve as a protecting element against melting heat of up to 240°C.

48. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 47, wherein the swelling layer further comprises a filler, which serves as a moisture protective element and is deposited electrostatically and arranged between the area around the thin sleeve and the core of the stranded conductors.

49. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33 wherein the conductors of the core or self-supporting member of the metal cables are elements selected from the group consisting of copper, alloys and combination thereof.

50. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33 wherein the conductors are subjected to thermal treatments.

51. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33 wherein the thermal treatment is between 45°C and 550°C.

52. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33 wherein the stranded pair further comprises optionally a covering of a thin protecting tape material comprising a temperature resistant material and applied helicoidally or longitudinally onto the protective element.

53. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33 wherein the space between the thin protecting tape material and the stranded conductor is impregnated through electrostatic means with the swelling layer.

54. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33 which permits development of cable constructions from at least 16 AWG to 26 AWG conductors as components of the core.

55. The overhead or underground telephone lead-in cable for transmission services (VVDL) of claim 33 further comprising trimmed edges and recesses to permit installation of the product.

56. The overhead or underground telephone lead-in cable for transmission

services (VVDL) of claim 33 comprising:

a rectangular structure comprising a rectangular outer cover having a geometrical shape comprising a thermoplastic material;

at least one or a plurality of transmission circuit comprising: a self-supporting member comprising two conducting elements; said elements arranged at the opposite ends, in parallel, and in turn are diametrically opposed to the transmission circuit;

said cable comprising a core having a pair of stranded metal conductors placed at the center of the rectangular structure of the cable wherein said conductors are insulated by a thermoplastic compound layer; a thin thermoplastic sleeve as protecting element against melting heat of up to 240°C; a filler of swelling layer surrounding said core which is deposited electrostatically between the area around the thin sleeve and the core of stranded conductors as a moisture protection element; and an extruded cover reinforced with a thermoplastic material forming the lead-in cable.